REMARKS

This application has been amended. Specifically, the energy field in claims 18, 23, 31 and 33 is now defined as an electromagnetic energy field within the Ultra-Wideband (UWB). Support for this amendment can be found in the paragraph beginning on line 28 of page 1 of the specification as filed. Thus, no new matter has been added. Claims 18 and 20-33 are pending. Claims 18, 20-26 and 28-33 stand rejected under 35 U.S.C. §103(a) for obviousness over U.S. Patent No. 6,552,661 to Lastinger et al. and further in view of U.S. Patent No. 6,617,962 to Horwitz et al. Claim 27 stands rejected under 35 U.S.C. §103(a) for obviousness over Lastinger et al. in view of Horwitz et al. and further in view of U.S. Patent No. 5,976,038 to Orenstein et al.

Claims 18 and 20-30 are directed to a localization system comprising a means for generating an electromagnetic energy field which is adapted to transmit pulse beams comprising nine pulse streams which are oriented substantially parallel to one another. Claim 31 is directed to a method for localizing objects or animals including the step of generating an electromagnetic energy field formed by one or more pulse beams, where each pulse beam comprises nine pulse streams oriented at least substantially parallel to each other. The electromagnetic energy field is within the UWB, which has a much greater bandwidth than conventional radio frequency (RF) transmissions. In addition, UWB does not use carrier waves but instead uses pulse trains. By dividing the pulse signal into a plurality of parallel pulse streams, and particularly nine pulse steams, Applicants have found that the pulse streams do not have to closely follow one another to increase the data transfer speed. (See specification, page 3, lines 1-13). This arrangement also enhances the reliability of the system, allows for less expensive detention means to be used and eliminates the need for error correction systems. (Id.).

The Office Action contends that Lastinger et al. is directed to a zone-based identification system that uses radio frequencies to determine whether a specific object is located within a certain zone. The system includes a receiver and a plurality of identification devices which are attached to different objects within the system. The Office Action admits that Lastinger et al. does not teach or suggest using pulse beams having nine pulse streams oriented substantially parallel to one another. The Office Action then cites to Horwitz et al. as teaching a system for multi-standard RFID tags wherein at least two pulse streams of a pulse beam are oriented at least substantially parallel to each other to provide multi-frequency

capability for the reader. While neither Lastinger et al. nor Horwitz et al. expressly discloses the use of nine pulse streams located substantially parallel to one another, the Office Action concludes this would be obvious since it amounts to nothing more than the combination of familiar elements according to known methods to yield predictable results. Applicants, however, disagree with this reasoning. In particular, Horwitz et al. is cited for a concept which it does not teach or suggest. Furthermore, the selection of nine pulse streams is not an obvious design choice in view of the cited documents and the knowledge generally possessed by those skilled in the art.

As mentioned above, the present invention is directed to a localization system comprising a means for generating an electromagnetic energy field which is adapted to transmit pulse beams comprising nine pulse streams which are oriented substantially parallel to one another. In the field of electronics, the term "parallel" is generally used to describe processes that take place simultaneously. For example, in the bus of a computer system having a number of conductors connected in parallel, several signals can be conveyed simultaneously. In Applicants' invention, the term "parallel" is not used to describe conductors over which the pulse streams are conveyed, but rather it is used to describe the relationship by which the pulse streams are transmitted to the surroundings. Thus, the pulse streams, which are substantially parallel to one another, can also be said to be transmitted simultaneously, or substantially simultaneously, from the means for generating the energy field.

By dividing the pulse signal into a plurality of substantially parallel pulse streams, and particularly nine pulse streams, the pulse streams do not have to closely follow one another to increase the data transfer speed. This arrangement enhances the reliability of the system, allows for less expensive detection means to be used and eliminates the need for error correction systems. A similar system using a pulse beam that is split into nine pulse streams oriented at least substantially parallel to one another is not taught or suggested in the cited documents of record.

Horwitz et al., at column 6, lines 52-61, discloses multiple pulse streams oriented substantially parallel to one another. While Horwitz et al. uses the term "parallel" in line 60, this term is used to describe the way in which the radio frequency modules (12, 14, 16, and 18) are interconnected within the electric circuit layout shown in Fig. 1. In this layout, the frequency modules are coupled in parallel to the interrogator control module (11)

via bus (19). This arrangement enables the multi-frequency capability for the reader (10). It does not, however, necessarily provide for the transmission of substantially parallel pulse streams from a means for generating an energy field, as recited in the claims. Instead, in Horwitz et al., the transmitter (104) excites the antenna (101) to transmit an interrogation or power signal to the tags in the field. (Horwitz et al., col. 10, lines 47-49). There is no discussion as to transmitting a pulse beam comprised of multiple, substantially parallel pulse streams. Assuming that Horwitz et al. discloses the transmission of a pulse beam comprising multiple, substantially parallel pulse streams is speculative and not properly supported by a teaching that the signals returned from the tags are received by a collection of frequency modules connected in parallel. It could just as easily be said that the transmitted pulse beam is composed of only a single pulse stream or superposed or sequentially transmitted pulse streams, none of which are considered "parallel" as that term is understood by those skilled in the art. Applicants' system departs from systems in which pulse streams are transmitted sequentially or superposed in favor of a pulse beam comprising pulse streams that are substantially parallel to one another. This concept is not taught or suggested in Horwitz et al.

Moreover, the energy field of the present invention is in the UWB region. UWB, as its name implies, operates over a much greater bandwidth than radio frequency. Lastinger, Horwitz et al. and Orenstein refer to systems having signals in this radio frequency (RF) range, rather than in the UWB range. The bandwidths available in the RF band are very limited due to the general use thereof for radio, television and other forms of broadcasting. The properties UWB signals are considerably different from the properties of RF signals. Accordingly, absent some teaching or motivation otherwise, one skilled in the art would not find it obvious to use UWB signals in a system designed for use with RF signals, or vice versa.

In addition, the selection of nine pulse streams is not an obvious design modification of the system of Lastinger et al. Applicants' invention is directed to a system that relates to the transmission of digital signals. The elements within a digital signal containing information can take the value of either "one" or "zero," and such elements are called bits. To convey substantial amounts of information, the signals must contain a large number of bits. Information theory teaches that it is best to organize these elements in groups such that the number of elements equals a multiple of two. A well known example is a byte, which most often contains eight bits. Other examples are computer systems adapted to use

to use pulse streams of 16, 32 or 64 bits. Applicants have chosen nine as the number of pulse streams in this invention. This is not consistent with the general practice of using pulses in multiples of two, and thus this selection is not obvious.

For all of the foregoing reasons, Applicants submit that pending claims 18 and 20-33 are patentable over the cited documents and are in condition for allowance. Accordingly, reconsideration of the rejections and allowance of pending claims 18 and 20-33 are respectfully requested.

Respectfully submitted,

THE WEBB LAW FIRM

By _____

John W. McIlvaine
Registration No. 34219
Attorney for Applicants
436 Seventh Avenue
700 Koppers Building
Pittsburgh, PA 15219
Telephone: (412) 471-8815
Facsimile: (412) 471-4094
E-mail: webblaw@webblaw.com